

**IN THE UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF TENNESSEE
AT CHATTANOOGA**

ZECO, LLC, d/b/a ZEE COMPANY,)
)
Plaintiff/
Counterclaim Defendant) No 1:21-cv-00079
)
v.)
)
ENVIRO TECH CHEMICAL
SERVICES, INC.,) JURY TRIAL DEMANDED
)
Defendant/
Counterclaimant))

ZECO, LLC'S OPENING BRIEF ON CLAIM CONSTRUCTION

I. INTRODUCTION

In August 2011, Enviro Tech Chemical Services, Inc. (“Enviro Tech”) filed an application that became U.S. Patent No. 10,912,321 (“the ‘321 Patent”). ECF 1-1. The ‘321 Patent issued on February 9, 2021. *Id.* Enviro Tech did not invent using peracetic acid (“PAA”) to treat poultry in a chill tank during processing, which was used in the United States before 2011. ECF 1-1 at 1:24-29; Declaration of Eric H. Chadwick, Ex. 1, p. 5, lines 6-9 and Ex. 6 at p. 2; Declaration of Dennis Heldman, ¶¶ 23-24.¹ Rather, Enviro Tech’s claimed invention is directed at a method of treating a poultry carcass with PAA comprising five order-specific steps.

During patent prosecution before the U.S. Patent and Trademark Office (“PTO”), Enviro Tech accepted the Examiner’s proposed amendment that narrowed the claims to explicitly require the five recited steps be performed in order. Enviro Tech also repeatedly argued a narrow characterization of certain terms to overcome prior art, even submitting numerous declarations in support of its narrow characterizations. Enviro Tech advanced the same arguments on appeal to the Patent Trial and Appeal Board (“PTAB”), which were accepted and resulted in issuance of the ‘321 Patent now asserted against Zeco, LLC (“Zeco”).

Enviro Tech now seeks to avoid the effect of the narrowing amendments and arguments used to obtain the ‘321 Patent. In some instances, it even seeks to avoid any construction of claim terms at all. For most of the terms, Enviro Tech asserts the patent claims should simply be given their plain and ordinary meaning. Adopting the plain and ordinary meaning is wrong given Enviro Tech’s prior statements. Moreover, it does not resolve the dispute between Enviro Tech and Zeco and improperly leaves the issue for the jury to resolve.

¹ As background on the technology at issue in this suit, among other things, Dr. Heldmann’s declaration provides a general overview of the steps taken during poultry processing.

Enviro Tech's proposed constructions ignore the intrinsic record including all its prior statements and disavowals. Enviro Tech now takes contrary positions and seeks to recapture disclaimed subject matter to broaden its claims. But the law precludes Enviro Tech from recapturing the disclaimed subject matter reflected in its proposed constructions. The Court should reject Enviro Tech's proposed constructions because they invite error. Zeco's proposed constructions, conversely, are grounded in well-established principles of claim construction, which includes use of the intrinsic record and extrinsic evidence consistent with it.

II. FACTUAL BACKGROUND

The '321 Patent relates generally to a method of treating poultry with a disinfectant or antimicrobial agent comprising five order-specific steps. Treating poultry with a disinfectant or antimicrobial agent is common in the poultry industry to inactivate or reduce microorganism contamination and make it suitable for human consumption. The particular method identified in the patent specification purports to increase the weight of the processed product, which, of course, results in increased revenue for a processor, as the price of the poultry is directly related to weight. Heldman Declaration, ¶¶ 12 and 20-22.

The '321 Patent has 33 claims, including independent claims 1, 10, 19, 24 and 29. ECF 1-1. During the appeal hearing before the PTAB, Enviro Tech acknowledged that the independent claims have the same exact language, except the recited pH range:

The claimed invention is a method of treating poultry in the chill tank with peracetic acid at an alkaline pH by adding an alkaline source to raise the pH of a peracetic acid to a high pH and the claims are all method claims. They're all the same. The independent claims are all the same except for they require different alkaline pH range and those ranges are, the first one is 7.6 to 10 and the other independent claims have ranges which are within that range.

Chadwick Decl., Ex. 1, p. 3, lines 10-16.

Representative claim 1 recites five steps, as follows:

1. A method of treating at least a portion of a poultry carcass with peracetic acid, said method comprising the steps of:

[STEP 1] providing, in a reservoir, a peracetic acid-containing water, wherein the peracetic acid-containing water comprises water and an antimicrobial amount of a solution of peracetic acid;

[STEP 2] after the step of providing the peracetic acid-containing water, [sic] determining the pH of the peracetic acid-containing water, and altering the pH of the peracetic acid-containing water to a pH of about 7.6 to about 10 by adding an alkaline source;

[STEP 3] after the step of determining the pH and altering the pH of the peracetic acid-containing water, placing into the peracetic acid-containing water at least a portion of a poultry carcass;

[STEP 4] after the step of placing at least the portion of the poultry carcass into the peracetic acid-containing water, determining the pH of the peracetic acid-containing water in the reservoir with at least the portion of the poultry carcass therein, and altering the pH of the peracetic acid-containing water to a pH of about 7.6 to about 10 by adding an alkaline source; and

[STEP 5] after the step of determining the pH and altering the pH of the peracetic acid-containing water having at least the portion of the poultry carcass therein, removing at least the portion of the poultry carcass from the peracetic acid-containing water.

ECF 1-1, Col. 61:31-58 (annotations added). Notably, Step 2 through Step 5 each recite “after the step” and then proceed to identify the immediately preceding step. This sequential ordering of the method steps resulted from an interview with the Examiner during which Enviro Tech agreed to narrow the claims to overcome a prior art rejection. Chadwick Decl., *see* Exs. 2-5.

The patent application was filed on August 16, 2011. ECF 1-1. The ‘321 Patent issued on February 9, 2021. *Id.* During the intervening 10 years, Enviro Tech engaged in voluminous exchanges with the PTO that limited the claims. Those exchanges included 11 Office Actions by the PTO rejecting the claims, nine responses to the Office Actions in which Enviro Tech made various arguments and amendments, 19 declarations from 11 individuals, and an appeal to the PTAB. All of this constitutes intrinsic evidence that is relevant to claim construction. And many

of the positions taken by Enviro Tech during prosecution, often more than once, inform the proper construction of terms.

III. LEGAL STANDARDS FOR CLAIM CONSTRUCTION

Determining the meaning of claims is a question of law. *Markman v. Westview Instr., Inc.*, 52 F.3d 967, 970-71 (Fed. Cir. 1995) (en banc), aff'd, 517 U.S. 370 (1996). A court first looks at the words of the claims to define the scope of a patented invention. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc). Claims should be interpreted as written, and generally terms should be afforded the “meaning that term would have to a person of ordinary skill in the art in question at the time of invention.” *Id.* at 1313. *Phillips* explains that “many cases” require “examination of terms that have a particular meaning in a field or art,” where the court must look to “the words of the claims themselves, the remainder of the specification, the prosecution history, and extrinsic evidence concerning relevant scientific principles, the meaning of technical terms, and the state of the art.” *Id.* at 1314.

A. Intrinsic Evidence – Statements in the Specification and File History

When interpreting a claim, a court should first look to intrinsic evidence (*i.e.*, the patent and prosecution history). *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996). “Such intrinsic evidence is the most significant source of the legally operative meaning of disputed claim language.” *Id.* “[T]he specification ‘is always highly relevant to the claim construction analysis. Usually it is dispositive; it is the single best guide to the meaning of a disputed term.’” *Phillips*, 415 F.3d at 1315 (quoting *Vitronics*, 90 F.3d at 1582). The Federal Circuit in *Phillips* confirmed “our cases recognize that the specification may reveal a special definition given to a claim term by the patentee that differs from the meaning it would otherwise possess. In such cases, the inventor’s lexicography governs.” *Id.* at 1316.

A court “should also consider the patent’s prosecution history.” *Id.* at 1317. “[T]he prosecution history can often inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it otherwise would be.” *Id.* When a patentee distinguishes prior art at the PTO, the patentee disavows claim scope because the prosecution history makes “clear that the invention does not include a particular feature.” *Pacing Techs., LLC v. Garmin Int’l, Inc.*, 778 F.3d 1021, 1024 (Fed. Cir. 2015). In other words, during prosecution, the patentee may disclaim scope of a term that it might otherwise have had. *Chimie v. PPG Indus., Inc.*, 402 F.3d 1371, 1384 (Fed. Cir. 2005) (“The purpose of consulting the prosecution history in construing a claim is to exclude any interpretation that was disclaimed during prosecution.”); *Computer Docking Station Corp. v. Dell*, 519 F.3d 1366, 1374 (Fed. Cir. 2008) (a patentee may limit a term’s meaning by characterizing the invention in a way to overcome a prior-art rejection); *CVI/Beta Ventures, Inc. v. Tura LP*, 112 F.3d 1146, 1158 (Fed. Cir. 1997) (“through statements made during prosecution … [a patentee] may commit to a particular meaning for a patent term, which meaning is then binding in litigation.”).

A party cannot recapture through claim construction a meaning disavowed during prosecution. *Aylus Networks, Inc. v. Apple, Inc.*, 856 F.3d 1353, 1359 (Fed. Cir. 2017). “A patentee may not proffer an interpretation for the purposes of litigation that would alter the indisputable public record consisting of the claims, the specification and the prosecution history, and treat the claims as a ‘nose of wax.’” *Southwall Techs., Inc. v. Cardinal IG Co.*, 54 F.3d 1570, 1578 (Fed. Cir. 1995); *Nike Inc. v. Wolverine World Wide, Inc.*, 43 F.3d 644, 647 (Fed. Cir. 1994) (a patentee cannot “rewrite its patent claims to suit its needs in this litigation.”). “Accordingly, in ascertaining the scope of an issued patent, the public is entitled to equate an

inventor's acquiescence to the examiner's narrow view of patentable subject matter with abandonment of the rest. Such acquiescence may be found where the patentee narrows his or her claims by amendment... or lets stand an examiner's restrictive interpretation of a claim."

TorPharm Inc. v. Ranbaxy Pharm, Inc., 336 F.3d 1322, 1330 (Fed. Cir. 2003) (citations omitted).

"A claim construction that excludes the preferred embodiment 'is rarely, if ever, correct.'"

Rambus, Inc. v. Rea, 731 F.3d 1248, 1253 (Fed. Cir. 2013) (citations omitted).

Courts need not "repeat or restate every claim term" merely because a party requests it; rather, a court has discretion to determine whether construction is necessary. *U.S. Surgical Corp. v. Ethicon, Inc.*, 103 F.3d 1554, 1568 (Fed. Cir. 1997); *O2 Micro Int'l Ltd. v. Beyond Innovation Tech. Co.*, 521 F.3d 1351, 1362 (Fed. Cir. 2008). However, an "ordinary meaning" construction should not improperly leave the jury to resolve disputes between the parties. *O2 Micro*, 521 F.3d at 1362. Courts must not "read limitations from a preferred embodiment described in the specification—even if it is the only embodiment—into the claims absent a clear indication in the intrinsic record that the patentee intended the claims to be so limited." *GE Lighting Sols., LLC v. AgiLight, Inc.*, 750 F.3d 1304, 1309 (Fed. Cir. 2014). Thus, Courts do not rewrite claims, they give effect to terms chosen by the patentee. *Smartmetric, Inc. v. American Exp. Co.*, 476 Fed. Appx. 742, 744-45 (Fed. Cir. 2012).

B. Temporal Meaning – Set at the Time of Invention

The "ordinary meaning" of a claim term is the meaning the term would have to a person of ordinary skill in the art ("POSITA") "at the time of invention, i.e., as of the effective filing date of the patent." *Phillips*, 415 F.3d at 1313. In this way, the court "assign[s] a fixed, unambiguous, legally operative meaning to the claim." *Chimie*, 402 F.3d at 1377. Once the court determines the meaning of the claim term at the filing date, "the literal scope of the term is

limited to what it was understood to mean at the time of filing,” and does not “later acquire[] a broader definition” if the art changes. *Kopykake Enters., Inc. v. Lucks Co.*, 264 F.3d 1377, 1383 (Fed. Cir. 2001). Thus, for example, even if the “scientific understanding of [a claim term] evolve[s] with new discoveries[,] . . . [it] . . . d[oes] not and c[an] not enlarge the scope of the patent to embrace technology arising after its filing.” *Schering Corp. v. Amgen Inc.*, 222 F.3d 1347, 1353-54 (Fed. Cir. 2000).

IV. THE LEVEL OF SKILL IN THE ART

Inventions are viewed through the lens of a person having ordinary skill in the art at the time of the invention. *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001). During patent prosecution, Enviro Tech provided a declaration from Jonathan Howarth, Ph.D., dated July 10, 2015, which stated, “I believe that a person skilled in the art of making and using biocides in poultry processing would be highly skilled and have experience with the biocides as actually used.” Chadwick Decl., Ex. 12 at ¶ 3.

Zeco agrees that the level of skill in the art of poultry processing using biocides is high, such that a POSITA would have at least an undergraduate scientific or engineering degree in a relevant field (such as microbiology, chemistry, poultry science or food processing), at least five years of experience in food processing and/or agricultural chemistry (or a graduate degree conferring similar expertise), and an understanding of the relevant principles of microbiology and food science technology. Heldman Decl., ¶¶ 17-18.

V. CLAIM CONSTRUCTION

All the disputed claim terms are recited in the independent claims. Enviro Tech acknowledged during the appeal hearing before the PTAB that all the independent claims have the same exact language, except the recited alkaline pH range, which is “about 7.6 to about 10”

in claim 1 and a subset of that range in the other independent claims. Chadwick Decl., Ex. 1, p. 3, lines 10-16. In Zeco's view, none of the other claims alter the proposed construction of any of the identified claim terms. As such, Zeco addresses terms recited in claim 1, which are equally applicable to the same terms recited elsewhere.

A. Agreed-to Term "reservoir"

Term 1	Claims ²	Agreed Construction
reservoir	1-3, 7-8, 10-12 , 16-17, 19, 24, 29	a liquid-holding container suitable for poultry processing, such as a pre, main, or final chill tank

The term "reservoir" appears in the Step 1 and Step 4 of claim 1. The reservoir is the receptacle used during poultry processing that contains disinfecting peracetic acid-containing water. The parties agree "reservoir" means "a liquid-holding container suitable for poultry processing, such as a pre, main, or final chill tank." This construction is supported by the written specification and prosecution history.

B. Contested Terms

i. "antimicrobial amount"

Term 2	Claims	Zeco's Construction
antimicrobial amount	1, 2-4, 10 , 11-13, 19, 24, 25, 29, 30	between about 0.54 ppm and about 99 ppm

Step 1 of each independent claim recites "providing, in a reservoir, a peracetic acid-containing water, wherein the peracetic-acid containing water comprises water and an antimicrobial amount of a solution of peracetic acid." Thus, the disputed claim term is used to

² Bolded numbers denote independent claims and unbolded numbers denote dependent claims.

describe the PAA solution provided in a reservoir. The description of using the PAA to treat poultry during processing is recited in the portion of the specification entitled “5. Methods of Using Peracetic Acid to Treat Poultry During Processing for Increasing the Weight of the Poultry.” ECF 1-1, Col. 29:53 – 61:28.

a. The claims are not instructive to the meaning, but give rise to the presumption of a differing scope in the independent claims

While the term “antimicrobial amount” pertains to “a solution of peracetic acid,” the term itself and surrounding words are *not* instructive to its meaning. First, the claim language of each independent claim fails to provide any quantity of the “solution of peracetic acid” that constitutes an “antimicrobial amount.” Second, the claim language fails to provide the *type* of PAA (e.g., equilibrium PAA and/or non-equilibrium PAA) to which the term “antimicrobial amount” pertains. Third, each independent claim has a respective dependent claim that also fails to provide the type of PAA but recites a specific quantity, such as, “wherein the antimicrobial amount of the peracetic acid is about 1 ppm to about 99 ppm.” See, e.g., ECF 1-1, Col. 62:4-5 (claim 4 depending from claim 1.) Under the doctrine of claim differentiation, this specifically recited range in the dependent claims gives rise to the presumption that the term “antimicrobial amount” in the independent claims has a broader scope. *Free Motion Fitness, Inc. v. Cybex Intern., Inc.*, 423 F.3d 1343, 1351 (Fed. Cir. 2005).

b. The specification’s special definition governs the meaning

Enviro Tech repeatedly characterized the independent claims as contrary to the accepted wisdom and long-standing knowledge in the industry because they “start with peracetic-acid containing water that is naturally at an acidic pH (*i.e.*, below a neutral pH of 7.0) and add an alkaline source to raise the pH to above at least 7.6 (*i.e.*, to a basic pH).” Chadwick Decl., Ex. 6, p. 6; Ex. 7, p. 24. Thus, any assertion by Enviro Tech that the term “antimicrobial amount” has a

well-accepted meaning is untenable in view of its own arguments that the independent claims depart from what was known in the industry.

Further, the “Detailed Description of the Invention” portion of the specification provides a special definition of the term. Since the specification is the single best guide to the meaning of a disputed term, the inventor’s lexicography governs. *Sinorgchem Co., v. Int’l Trade Comm’n*, 511 F.3d 1132, 1136 (Fed. Cir. 2007); *Phillips*, 415 F.3d at 1315-1316. *Sinorgchem* is instructive to the special definition provided in the specification of the ‘321 Patent.

In *Sinorgchem*, the claims recited “controlled amount,” a term that did not have a well-accepted meaning in the field of chemistry. *Sinorgchem*, 511 F.3d at 1136. The patent specification, however, provided express definitional language, as follows:

A “controlled amount” of protic material is an amount up to that which inhibits the reaction of aniline with nitrobenzene, e.g., up to about 4% H₂O based on the volume of the reaction mixture when aniline is utilized as the solvent.

Id. Notably, the court remarked that “[e]lsewhere in the same paragraph, the specification again referred to the 4% limit.” *Id.* Based, in part on these excerpts, the Federal Circuit held that the patentee had acted as his own lexicographer and should be bound to the express definition. *Id.* at 1136-37. The Court addressed four factors to be used as a guide when determining whether an express definition has been provided: (1) the use of quotation marks; (2) the use of the word “is” to describe the term; (3) whether use of the express definition excludes embodiments; and (4) whether the doctrine of claim differentiation counsels against using the express definition. *Id.* at 1136-1140. None of the four factors were treated by the Federal Circuit as dispositive. And the court found that, even though the express definition excluded one of 21 examples identified as “preferred embodiment[s],” construction of the term consistent with the express definition was warranted. *Id.* The same result is warranted here.

Although the term “antimicrobial amount” is not set off by quotation marks in the specification of the ‘321 patent, that is not the end of the inquiry.³ Like “controlled amount” in *Singorchem*, “antimicrobial amount” is described and defined in the specification through use of the word “is.” And as the Federal Circuit stated, use of the term “is” in the specification often ‘signif[ies] that a patentee is serving as its own lexicographer,’ such that “the patentee must be bound by the express definition.” *Id.* at 1136.

When describing the PAA-containing water, the specification consistently uses the term “is” to define “antimicrobial amount” in relation to the PAA used. In fact, it does so for all three types of embodiments identified in the specification where PAA is used to treat poultry during processing for increasing the weight of the poultry. The three embodiments describe the use of (i) non-equilibrium PAA, (ii) equilibrium PAA, and (iii) either non-equilibrium or equilibrium PAA. Each is addressed below.

1. Non-equilibrium PAA

In the first described embodiment, under the heading “Methods Utilizing Non-Equilibrium Peracetic Acid,” the specification tracks with the claim language to describe PAA-containing water formed by combining water and an antimicrobial amount of a non-equilibrium PAA solution. ECF 1-1, Col. 29:55-62. The specification recites that to form the PAA-containing water “[a]n antimicrobial amount of PAA is used.” *Id.*, Col. 30:8-9. As was the case in *Sinorgchem*, later in the very same paragraph the specification provides “[t]he amount of PAA that is used depends on the microbiological condition of the carcasses, but is about 0.54 ppm to

³ Zeco acknowledges other terms in the ‘321 Patent appear in quotation marks. *See*, Col. 8:18-32.

about 99 ppm.” *Id.*, Col. 30:7-14 (emphasis added). Thus, the specification provides an express definition that the antimicrobial amount of PAA “is” a range from about 0.54 to about 0.99 ppm.

A separate embodiment, still using an antimicrobial amount of non-equilibrium PAA to provide PAA-containing water, provides almost identical disclosure. The specification provides that the water in the reservoir “is dosed with PAA in an amount that is antimicrobial.” *Id.*, Col. 31:10-11. In the very same paragraph, the specification again provides “[t]he amount of PAA that is used . . . is about 0.54 ppm to about 99 ppm.” *Id.*, Col. 31:14-16 (emphasis added).

In yet the same embodiment using non-equilibrium PAA, the specification provides further context supporting the conclusion that the language is definitional. As part of the process of continually introducing poultry into and out of the reservoir, up to one-half gallon per poultry carcass may be removed or bled off to keep the level of contaminants (*e.g.*, blood, fecal matter) introduced into the peracetic-acid containing water at acceptable levels. *Id.*, Col. 31:56-62. This results in the introduction of additional water to maintain the volume of liquid in the reservoir. *Id.* With the introduction of additional water, the specification provides that “additional non-equilibrium solution of PAA is introduced into the reservoir as needed *to keep* the amount of PAA at about 0.54 ppm to about 99 ppm to continue to provide sufficient antimicrobial efficacy.” *Id.*, Col. 31:65-67 (emphasis added). Maintaining PAA within the specified range “to continue to provide sufficient antimicrobial efficacy” is just another way to describe an “antimicrobial amount.” And here again, the specification makes clear that amount falls within the range discussed above.

2. Equilibrium PAA

In the second described embodiment, under the heading “Methods Utilizing Equilibrium Peracetic Acid,” the specification again tracks with the claim language to describe PAA-

containing water formed by combining water and an antimicrobial amount of an equilibrium solution of PAA. *Id.*, Col. 33:16-22. The specification again recites that “an antimicrobial amount of PAA is used.” *Id.*, Col. 33:30-31. And again, later in the very same paragraph the specification provides “[t]he amount of PAA that is used depends on the microbiological condition of the carcasses, but is about 1 ppm to about 99 ppm.” *Id.*, Col. 33:34-36 (emphasis added). The only difference between this embodiment using equilibrium PAA and those using non-equilibrium PAA is the lower end of the range, which changed slightly from about 0.54 ppm to about 1 ppm. Otherwise, the disclosures are identical.

3. Either Non-Equilibrium or Equilibrium PAA

In the final described embodiments, under the heading “Methods Utilizing Either Non-Equilibrium or Equilibrium PAA, the specification recites a method pertaining to either type of PAA. *Id.*, Col. 35:1-6. As with the prior two types of embodiments, the specification provides near identical disclosure once again. First, the specification again reiterates that “[t]he water is dosed with PAA in an amount that is antimicrobial.” *Id.*, Col. 35:46-47. Next, accounting for both equilibrium and non-equilibrium PAA, the specification provides, “[t]he amount of PAA that is used . . . is about 0.54 ppm to about 99 ppm for non-equilibrium PAA and about 1 ppm to about 99 ppm for equilibrium PAA.” *Id.*, Col. 35:50-54 (emphasis added).

And as it had with a prior embodiment, the specification again addresses the issue of lost liquid as a natural consequence of poultry processing that necessitates maintaining the volume of PAA-containing water within the reservoir. *Id.*, Col. 36:64-37:9. The specification once again provides that when make-up water is introduced into the reservoir to maintain the volume within the reservoir, additional PAA is also introduced “*to keep* the amount of PAA at about 0.54 ppm

to about 99 ppm for non-equilibrium PAA or about 1 to about 99 ppm for equilibrium PAA to continue to provide sufficient antimicrobial efficacy.” *Id.*, Col. 37:3-9.

c. The special definition is consistent with the examples and representations in the specification

The ‘321 Patent provides numerous other detailed examples of treating poultry with peracetic acid-containing water where the term “antimicrobial amount” is not referred to explicitly. The details of each example are recited in the following chart:

Example	Concentration of PAA (ppm)	Specification (Column:Line)
16	5	38:51 - 41:7
17	1 and 99	41:8 - 43:2
18	90	43:4 – 46:2
19	1	46:4 – 48:18
20	5 and 10	48:19 -50:55
21	5	50:57 – 51:61
22	99	51:63 – 55:2
23	1	55:4 – 58:7
24	15	58:9 – 61:24

Consistent with the express definition of “antimicrobial amount,” however, every single example falls within the 0.54 ppm to 99 ppm range. Moreover, every single example falls outside of the 20 – 50 ppm range, which the patentee earlier described as the typical concentration range used in the industry as prior art. *Id.*, Col. 6:17-18. Notably, the patentee remarked that use of a smaller dosage of PAA than what was typical in the prior art, resulted in a “surprising result.” *Id.*, Col. 38:51. As demonstrated in the preceding overview of the specification, the construction proposed by Zeco does not exclude embodiments of the ‘321 Patent. Rather, the construction is consistent with all embodiments whether they utilize equilibrium PAA or non-equilibrium PAA.

Moreover, the doctrine of claim differentiation supports Zeco’s proposed construction. Every independent claim recites “an antimicrobial amount of a solution of peracetic acid.” *Id.*, Col. 61:36-37; 62:36-37; 63:36-37; 64:10-11; 64:52-53. None of the independent claims recite any numerical range for the antimicrobial amount of PAA. None of the independent claims are limited to equilibrium or non-equilibrium PAA. As such, they cover the full range of PAA from about 0.54 ppm to about 99 ppm. *Id.* Moreover, each independent claim has a dependent claim that recites a numerical range such that “the antimicrobial amount of the peracetic acid is about 1 ppm to about 99 ppm.”⁴ *Id.*, Col. 62:4-5; 63:4-5; 63:59-60; 64:34-35; 65:8-9. In each instance, the independent claim using Zeco’s proposed construction is broader than its corresponding dependent claim. So, the doctrine of claim differentiation does not expose Zeco’s proposed construction as flawed.

Also, this express definition of the term “antimicrobial amount” is consistent with Enviro Tech’s repeated characterization that the independent claims are contrary to the accepted wisdom

⁴ The respective dependent claims are claims 4, 13, 20, 25 and 30.

and long-standing knowledge in the industry. The “Background of the Invention” discloses the typical use of equilibrium PAA at its naturally acidic pH (i.e., below 7.0):

Equilibrium peracetic acid is typically used at ***concentrations of about 20 ppm to about 50 ppm in poultry chill tanks.*** At these concentrations, the peracetic acid causes the ***pH of the chill tank water to be about 4.5 to about 5.5.*** The poultry processing industry views this pH range as advantageous because it is accepted in the industry that bacteria and other microorganisms are more readily destroyed at lower pH values, and because equilibrium peracetic acid is more stable, and therefore more cost-effective, when used in an acid environment.

ECF 1-1, Col. 6:20-26 (emphasis added). Indeed, every single example provided in the ‘321 Patent is at a concentration outside this “typical” PAA concentration of 20-50 ppm. *See* Table in Section V.B.i.c., *supra*.

Accordingly, the proposed construction not only includes the special definition, but also encompasses each disclosed embodiment, each of Examples 16-24, and abides by the doctrine of claim differentiation by providing a broader scope than the dependent claims. “When the specification explains and defines a term used in the claims, without ambiguity or incompleteness, there is no need to search further for the meaning of the term.” *Sinorgchem*, at 1138 citing *Multiform Dessicants, Inc. v. Medzam, Ltd.*, 133 F.3d, 1473, 1478 (Fed. Cir. 1998).

Other than the absence of quotation marks about “antimicrobial amount,” all the factors used as guides in *Sinorgchem* are present and suggest an express definition. The patentees used the term “is,” which often indicates they acted as their own lexicographer. *Sinorgchem*, 511 F.3d at 1136. The specification’s express definition of “antimicrobial amount,” a term without a well-accepted meaning in the art, is neither ambiguous nor incomplete. And Zeco’s proposed construction neither excludes preferred embodiments nor runs afoul of the doctrine of claim differentiation. The specification consistently and repeatedly presents the term “antimicrobial

amount” by way of definition as PAA between about 0.54 ppm and about 99 ppm. As such, the Court should adopt Zeco’s proposed construction.

ii. “determining the pH of the peracetic acid-containing water”

Term 3	Claims	Zeco’s Construction
determining the pH of the peracetic acid-containing water	1, 5, 9, 10, 11, 14, 18, 19, 21, 23, 24, 26, 28, 29, 31, 33	measuring the acidity or alkalinity of the peracetic-acid containing water in the reservoir

Step 2 and Step 4 of the independent claims both recite “determining the pH of the peracetic acid-containing water.” Grammar and logic of the claims dictate that “determining the pH of the peracetic acid-containing water” must occur where the peracetic acid-containing water is provided – in the reservoir – as recited in the Step 1. Indeed, Step 4 explicitly provides as much, reciting “determining the pH of the peracetic acid-containing water *in the reservoir* with at least the portion of the poultry carcass therein.” Therefore, the inclusion of “in the reservoir” as proposed in Zeco’s construction is proper.

As to the meaning of the term “determining,” the examples provided in the specification without exception indicate that this means pH is measured. For instance, Example 16 provides that “the pH and … PAA were measured at 1, 5, 10, and 20 minutes” and refers to Table XXI, which includes a “measured pH” column. ECF 1-1, Col. 39:36-66. The same is true for specification excerpts for Example 17-19, and 21-24, as shown below:

Example	Statement	Excerpt
17	“pH was measured”	41:54
18	“pH of the solution was measured” “pH of the PAA-containing water was measured”	43:40-41 43:67

	“pH was measured” “pH was periodically measured”	44:3-4 44:6
19	“pH of the PAA-containing water with the chickens before altering was measured”	46:39-41
21	Table of “Measured pH”	51:30-45 (Table XXXV)
22	“pH of the PAA-containing water with the chickens before altering was measured”	52:48-49
23	“pH of the PAA-containing water with the chickens before altering were measured” “pH was periodically measured”	55:56-67 55:65-66
24	“pH was measured daily” “Table XXXXVII report the actual measured pH” “Table XXXXVIII reports the actual measured pH”	58:57 59:2-3 59:32

The file history reinforces a construction that determining the pH means measuring the acidity or alkalinity (*i.e.*, the pH) of the liquid in the reservoir. When attempting to overcome prior art rejections, Enviro Tech characterized the limitation consistent with a construction of “determining” to mean “measuring.” Enviro Tech argued that the patent claims “require actively managing the pH of the peracetic acid-containing water,” altering the pH requires “additional equipment to measure and monitor the pH,” and the prior art “did no measuring of pH or adjustment of pH after placing the poultry into the solution because there was no reason to do so.” Chadwick Decl., Ex. 8, ¶¶ 3-4, 6 (emphasis in original). On appeal, Enviro Tech again

distinguished its claims by arguing the prior art did “no measuring of pH” after the poultry was placed in the reservoir. *Id.*, Ex. 9 (Exhibit 6A – Bilgili, p. 5, ¶ 6.) Enviro Tech’s repeated representations in the file history demonstrate that “determining the pH” means measuring the acidity or alkalinity (*i.e.*, the pH) of the peracetic-acid containing water.

Enviro Tech’s reliance on the Bilgili declaration is also relevant because it indicates the understanding of POSITA as to the term’s meaning. Zeco’s expert concurs that POSITA would understand “determining” to mean “measuring.” Heldman Decl., ¶¶ 24-33. After all, a glass electrode, indicator solution, and pH test strip, all of which were explicitly identified in the specification, each directly measure pH of the peracetic acid-containing water in the chill tank. *Id.* Thus, both parties have submitted extrinsic evidence that aligns with the intrinsic record. And together, they establish that “determining” means “measuring.” The Court should adopt Zeco’s proposed construction.

iii. “altering the pH of the peracetic acid-containing water to a pH of about [respective claimed pH range]”

Term 4	Claims	Zeco’s Construction
altering the pH of the peracetic acid-containing water to a pH of about [respective claimed pH range]	1, 6, 9, 10 , 15, 18, 19, 23, 24 , 27, 28, 29 , 32, 33	raising the acidic pH of the peracetic acid-containing water in the reservoir to an alkaline pH of [the respective claimed pH range]

Step 2 and Step 4 of the independent claims both also recite “altering the pH of the peracetic acid-containing water to a pH of about [respective claimed pH range].” Every recited pH range falls in the alkaline portion of the pH scale, above a pH of 7. *See* Heldman Decl., ¶ 25.

During prosecution, the claims initially recited an if-then formulation that allowed manipulation of the pH in either direction if it fell below or above the claimed range. One exemplary claim, recited the following:⁵

Pre-Amendment Step 2
after the step of providing the peracetic acid-containing water, determining the pH of the peracetic acid-containing water, and, if the pH is determined to be lower than about 7.6 or higher than about 10, then altering the pH of the peracetic acid-containing water to a pH of about 7.6 to about 10.

Chadwick Decl., Ex. 7, p. 3. The claims were rejected over prior art that taught the addition of acid to lower the pH. *Id.*, Ex. 7, pp. 13, 23. Enviro Tech contended this was “the opposite” of its invention and narrowed the claims to allow adjustment of the pH only in one direction, upward with an alkaline source. *Id.*, Ex. 7, p. 23. Step 2 was amended as follows:⁶

Amended Step 2
after the step of providing the peracetic acid-containing water, determining the pH of the peracetic acid-containing water, and, <u>if the pH is determined to be lower than about 7.6 or higher than about 10, then</u> altering the pH of the peracetic acid-containing water to a pH of about 7.6 to about 10 <u>by adding an alkaline source.</u>

Id., Ex. 7, p. 2. The amendment fundamentally changed the scope of the claim. First, it removed the if-then formulation such that the claim now always requires altering the pH from outside the range to inside the range. Second, addition of the phrase “by adding an alkaline source” ensured that the pH could only be raised because that is the result of adding an alkaline source. In fact, the declaration of inventor Jonathan N. Howarth, Ph.D. argued that very point, stating that “[i]t is

⁵ The same type of amendment was also made to method Step 4.

⁶ Underlining denotes new claim language and strikethroughs denote removed claim language.

a basic principle of chemistry that, in general, the addition of an acidic substance lowers the pH of a solution, while the addition of an alkaline substance raises the pH of a solution” and “Applicant’s claims require the addition of an alkaline source to raise the pH to an alkaline pH (the pH ranges of 7.6-10, 7.6-9.3, 7.6-9, and 8-9).” Chadwick Decl., Ex. 13 at ¶¶ 4-5 (emphasis in original). Enviro Tech also argued that very point, asserting that its “claims are directed to a peracetic acid disinfection system and require raising the pH by adding an alkaline source.” Chadwick Decl., Ex. 7, p. 18.

Enviro Tech’s claims, which require adding an alkaline source to raise the pH into an alkaline range from an acidic range, went against conventional wisdom. Enviro Tech again relied on Dr. Bilgili to support its contention that “the accepted knowledge and the longstanding training in the industry was that the chill tank pH should be acidic.” *Id.*, Ex. 7, p. 24 (emphasis in original). Enviro Tech further asserted that a POSITA in 2011 “would not raise the pH of the chill tank water in a peracetic acid disinfection system by adding an alkaline source and would not raise the pH to the ranges **required by Applicants’ claims.**” *Id.* (bold emphasis added, underline in original). By amendment and argument, Enviro Tech made clear that “altering the pH” means raising from an acidic pH into the specified alkaline pH range.

Prior to the amendment, Enviro Tech argued its invention has a first pH altering step prior to contact with a poultry carcass, a second pH altering step after contact with a poultry carcass, and a POSITA would not choose to intentionally “raise” the pH from the unadjusted acidic pH (e.g., below pH of 7.0) “up to” the alkaline pH range claimed in the ‘321 Patent. *Id.*, Ex. 10, p. 8.

Although the patent examiner would not allow the claims, Enviro Tech persisted. It appealed and reiterated its argument that the claims required the addition of an alkaline source to

“raise” the naturally acidic pH peracetic acid-containing water in a chill tank to an alkaline pH.

Chadwick Decl., Ex. 9, pp. 19-20, 22, 24, 31-32, 43 and 46. Enviro Tech’s arguments convinced the Patent Trial & Appeal Board who remarked as follows:

Appellant argues that “the combination of cited references does not lead to appellants’ claimed method of adding an alkaline source to raise the pH of a peracetic acid system to an alkaline pH.” Appeal Br. 22. We agree....

* * *

The independent claims at issue here, in contrast, start with peracetic-acid containing water that is naturally at an acidic pH (i.e., below a neutral pH of 7.0) and add an alkaline source to raise pH to above at least 7.6 (i.e., to a basic pH). Appeal Br. 70-79 (Claims App.).

Id., Ex. 6, pp. 5-6 (emphasis in original).

Enviro Tech’s repeated characterization of this limitation, which was adopted by the PTAB on appeal, provides an indisputable public record, disavows broader claim scope, and dictates its meaning that is binding in this litigation. *CVI/Beta*, 112 F.3d at 1158 (“through statements made during prosecution ... [a patentee] may commit to a particular meaning for a patent term, which meaning is then binding in litigation.”).

Enviro Tech cannot now avoid the representations it has made over the course of the past 10 years. It has made clear that “altering the pH” means *raising* the pH from an acidic pH into an alkaline range. As such, the Court should adopt Zeco’s proposed construction.

iv. “after the step”

Term 5	Claims	Zeco’s Construction
after the step	1, 6, 10, 15, 18, 19, 22, 23, 24, 28, 29, 32, 33	STEP ORDER - This term requires each of the steps recited must be performed in the order written.

The independent claims recite the phrase “after the step of...” in Step 2 through Step 5. This “after the step” limitation was added to each independent claim by amendment, such that the explicit language requires the steps be performed in the order recited.

“As a general rule, ‘[u]nless the steps of a method [claim] actually recite an order, the steps are not ordinarily construed to require one.’” *Mformation Techs., Inc. v. Research in Motion Ltd.*, 764 F.3d 1392, 1398 (Fed. Cir. 2014). “However, a claim ‘requires an ordering of steps when the claim language, as a matter of logic or grammar, requires that the steps be performed in the order written, or the specification directly or implicitly requires’ an order of steps.” *Id.* at 1398-99; *see also Baldwin Graphic Sys., Inc. v. Siebert, Inc.*, 512 F.3d 1338, 1345 (Fed. Cir. 2008) (“[A]lthough a method claim necessarily recites the steps of the method in a particular order, as a general rule the claim is not limited to performance of the steps in the order recited, unless the claim explicitly or implicitly requires a specific order.”). “A particular order might also be required if each subsequent step referenced something logically indicating that the prior step had been performed.” *TALtech Ltd. v. Esquel Apparel, Inc.*, 410 F. Supp. 22 977, 998-99 (W.D. Wash. 2006) (citing *Mantech Envtl. Corp. v. Hudson Envtl. Servs., Inc.*, 152 F.3d 1368, 1375–76 (Fed. Cir. 1998)).

Here, logic, grammatical structure and syntax require that the steps be performed in the order written. Following the “after the step” limitation, Step 2 through Step 5 each explicitly recites the immediately preceding step followed by language pertaining to the new step. Using claim 1 as an example, Step 1 recites providing peracetic-acid containing water in a reservoir and Step 2 recites “after the step of providing the peracetic-acid containing water. . . .” ECF 1-1, Col. 61:34-39. Each preceding step provides antecedent basis for the repeated portion of the step that follows the “after the step” limitation in the subsequent step. When “the language of most of the

steps of [a] method claim refer to the completed results of the prior step, [the plaintiff] must show that all of those steps were performed in order.” *E-Pass Tech., Inc. v. 3Com Corp*, 473 F.3d 1213, 1222 (Fed. Cir. 2007).

Moreover, Enviro Tech expressly agreed to the “after the step” limitation during an interview with the Examiner on July 21, 2016, as reflected in the Examiner’s Amendment. Chadwick Decl., Exs. 2-5. When Enviro Tech subsequently added new independent claim 57 (corresponding to issued claim 29), it again voluntarily narrowed its claims by including the “after the step of....” limitation for Step 2 through Step 5. *Id.*, Ex. 11, p. 8.

Accordingly, in ascertaining the scope of ‘321 Patent, the public and this Court are entitled to equate Enviro Tech’s acquiescence with abandonment of a broader interpretation. *TorPharm Inc. v. Ranbaxy Pharm, Inc.*, 336 F.3d 1322, 1330 (Fed. Cir. 2003) (acquiescence may be found where the patentee narrows claims by amendment... or lets stand an examiner’s restrictive interpretation of a claim). As such, Zeco’s construction of the “after the step” limitation requiring the recited steps be performed in the order written is warranted.

CONCLUSION

For the foregoing reasons, Zeco requests that the Court adopt its proposed constructions.

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